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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,445	01/22/2001	Uzi Sharon	153/01963	5079

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WILLIAM H. DIPPERT
REED SMITH L.L.P.
599 LEXINGTON AVENUE
29TH FLOOR
NEW YORK, NY 10022

EXAMINER

FARAH, AHMED M

ART UNIT PAPER NUMBER

3739

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Cn

Office Action Summary

Application No.

09/744,445

Applicant(s)

Uzi Sharon

Examiner

Ahmed M. Farah

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE one MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Mar 24, 2003
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-41, and 43-59 is/are pending in the application.
- 4a) Of the above, claim(s) 43-56 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-41, and 57-59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7, 9-14, 20, 21, 26-4, and 57-59 are rejected under 35 U.S.C. 102(b) as being anticipated by Zavislan et al. U.S. Patent 5,653,706.

As to claim 1, Zavislan et al. disclose dermatological laser treatment system and methods of use, the treatment system comprising:

an imaging subsystem (CCD camera 48; display 40; and monitor 26) that locates features on the skin to be treated (see Figs. 2- 4);

a laser system 20, which provides the treatment light;

laser optics (lens 68, focusing mechanism 69, and focussing lens 42) that focuses light from the laser onto a feature located by the imaging subsystem 48 (see Fig. 4 and Col. 6, lines 34-45); and

a controller 24, that when a feature is located, controls the laser to radiate a pulse of laser light that is focused by the laser optics to the treatment site.

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As to claim 2, the treatment system further comprises an illumination light **52** that illuminates regions imaged by the imaging optics (Col. 5, lines 61-63).

As to claim 3, Zavislan et al. use a single laser source, which provides laser pulses in the wavelength range of between 700 to 1300 nm (see claim 1). Hence, since their laser is operable to varying in wavelength over a given range, it is considered to be a tunable laser.

As to claims 4-7, the cross sectional area of the focused treatment light is relatively larger than the size of the targeted features. For instance, if the system is used to destroy endothelial cells in blood vessel, the spot to which the laser is focused is inherently larger than the area occupied by the skin feature being targeted.

As to claim 9, scan mirror **54** of the imaging subsystem scans an area of the skin and automatically locates the features on the skin to be treated (see Col. 3, lines 38-42; and Col. 6, lines 14-16 and lines 25-30).

As to claims 10 and 14, the imaging subsystem comprises at least one photosensitive surface (CCD video camera **48**) and the imaging optics (optical element **54**) are moved relative to the skin.

As to claim 13, the CCD video camera **48** inherently has a circuitry that receives and process signals generated by photosensitive to provide visual image of the desired feature.

As to claims 20 and 21, charged coupled devices (CCD) comprise semiconductor arrays (multiple photosensitive surfaces) in which charges are introduced when light from a scene is focused on the surface of the device.

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As to claims 26 and 27, the imaging optics comprises an objective lens system (focusing lens 42), which collects light from the treatment site, and an ocular lens (rear lens 44) that receives light collected by the objective lens system and images the received light on photosensitive surface (see Fig. 3).

As to claims 29, 30 and 35 the laser optics comprise a collimating lens 68 that receives light irradiated by the laser; an actuator (focusing mechanism 69), which moves (rotates) the focusing lens; and a reflector (beam splitter 54 which is also a part of the imaging subsystem) that reflects the collimated laser light towards the objective lens system (lens 42) so as to focus the laser light to a spot at the focal point of the objective lens system as presently claimed.

As to claim 32, the ocular lens system (lens 44) and at least one photosensitive surface (CCD camera 48) are positioned on a side of the reflector opposite to the side of the reflector on which the objective lens system is located. See Fig. 3.

As to claims 31 and 33, reflector 54 reflects the laser light towards the treatment site (behaves like a mirror); and partially transmits the light reflected from the tissue surface towards the CCD camera (behaves like a beam splitter).

As to claim 34, the ocular lens (lens 44) and the photosensitive surface are stationary with respect to the axis of rotation.

As to claim 36, the actuator (focusing mechanism 69 that is coupled to focusing lens 68) further moves the focusing lens back and forth and would provide a planar arc having a fixed length.

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As to claims 37-41, the imaging subsystem (lens 44 and CCD camera 48); the light source (illumination light 52); the laser (optical fiber 22); the controller; and the power source are all mounted on handpiece 10. See Figs. 1-3.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 15-19 and 22-25 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Zavislan et al. in view of Bolger et al. U.S. Pat. No. 5,437,290.

Zavislan et al., described above, do not use quadrature detector. However, Bolger et al. teach a medical system and method in which quadrature detection system is used to monitor the position and penetration depth of intraluminal catheter during vascular treatment. It is known in the art that quadrature components (i.e., amplifiers, detectors, etc) shift the phase of a signal 90° . It also known that such components are used with color television components such as CCD's. Therefore, it would have been obvious to one skilled in the art at the time of the applicant's invention to modify Zavislan et al. in view of Boger et al. and use quadrature detector in order to monitor out-of-phase signals reflected from the different tissues (targeted and un-targeted) at the treatment site.

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Response to Arguments

5. Applicant's arguments filed march 24, 2003, have been fully considered but they are not persuasive. The applicant's representative argued as follows:

A. With respect to claim 1, the applicant's representative argues that the laser system of Zavislan "does not locate feature on the skin," i.e., the imaging subsystem of Zavislan does not automatically locate the desired features on the skin. He argues that, in order to locate the desired features, the operator/physician does the locating by viewing the skin area on the display/monitor and in turn manually operating the beam steering device. He further argues that the controller of Zavislan does not automatically control the laser to irradiate but the physician operating the laser system controls the firing of the laser.

In response to this argument, claim 1 of the instant application recites "an imaging subsystem that locates feature on the skin to be treated." Nowhere in the claim does it actually say that 'the imaging subsystem automatically locates the desired skin features' as stated in the applicant's remarks/arguments. Secondly, even if this recitation is clearly recited in the claim, the process of automating the imaging subsystem is not a patentable subject matter. Nevertheless, Zavislan clearly teaches that their imaging subsystem automatically locates features on the skin to be treated (see column 4, lines 28-38).

B. With respect to claim 3, the applicant's representative argues that Zavislan fails to teach a tunable laser, which provides the treatment light. He further acknowledges that laser source of Zavislan provides the wavelength range of 700-1300 nm. After acknowledging the

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teachings of Zavislan, the applicant's representative states that 'a non-tunable laser that provides a wavelength in the stated range [of 700-1300 nm] is appropriate for the practice of invention.'

Hence, he concludes that the laser source of Zavislan that provides the light in the stated wavelength range does not have to be a tunable laser.

In response to these arguments, since Zavislan clearly teaches that his laser source operates in the wavelength range of 700-1300 nm, the examiner's position is that this laser is a tunable laser. Any laser in which the frequency/wavelength of the output radiation can be tuned over part or all of the ultraviolet, visible, and the infrared regions of the spectrum can be considered as a tunable laser.

As to the argument/statement that 'a non-tunable laser would provide the stated wavelength range (i.e., 700-1300 nm),' the applicant is reminded that a non-tunable light source which operates in the wavelength range of 700-1300 nm is a broad-band light source and cannot be considered a laser. Laser can be defined as active medium (light source) providing a very narrow, intense beam of coherent light.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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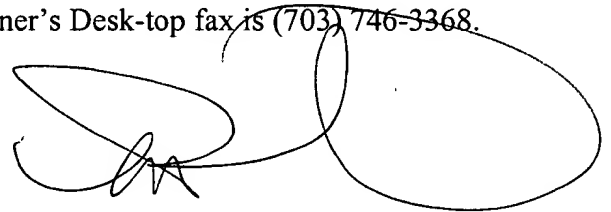
MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Farah whose telephone number is (703) 305-5787. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Linda Dvorak, can be reached on (703) 308-0994. The official fax number for the group is (703) 872-9302; the fax number for After Final is (703) 872-9303; and the Examiner's Desk-top fax is (703) 746-3368.

A. M. Farah

Patent Examiner (Art Unit 3739)

December 26, 2003.



Linda C. M. Dvorak

Supervisory Patent Examiner